

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re U.S. Patent Application of** )  
 )  
**AOKI** )  
 )  
**Application Number: -To be Assigned** )  
 )  
**Filed: Concurrently Herewith** )  
 )  
**For: SEMICONDUCTOR LASER** )

**Honorable Assistant Commissioner  
for Patents  
Washington, D.C. 20231**

**PRELIMINARY AMENDMENT**

Sir:

Applicant has amended the claims in order to make them correct in accordance with standard U.S. practice. Prior to an examination on the merits, please amend the above-identified application as follows:

**IN THE CLAIMS:**

Please substitute the claims with the following amended claims:

10. (Amended) An optical module comprising at least an optical fiber for introducing light outside and a semiconductor laser that includes a semiconductor substrate, a core region formed on one side of the semiconductor substrate, and a clad region formed on the opposite side of the substrate not having the core region, wherein

the core region has a gain area length not smaller than 18 micrometers and not greater than 200 micrometers, at least one of the core region and the clad region has a stripe shape, and a stripe width is modulated in the vertical direction against the optical axis of at least the core region or the clad region and in the parallel direction with respect to the substrate surface,

the stripe width in the vicinity of the stripe ends is set narrower than a cut-off width where a lateral mode is identical, and

the lateral width in the horizontal direction has a portion within the gain region set wider than the cut-off width were the lateral mode is identical.

20. (Amended) An optical module comprising at least an optical fiber for introducing light outside and a semiconductor laser that includes a semiconductor substrate, a core region formed on one side of the semiconductor substrate, and a clad region formed at least on the opposite side of the substrate not having the core region, wherein

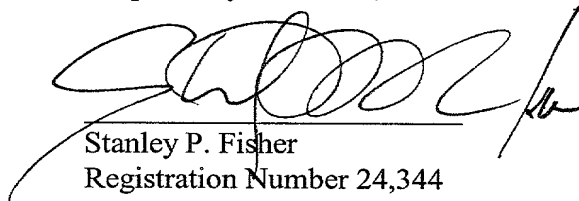
the core region has a gain area length not smaller than 5 micrometers and not greater than 200 micrometers, at least one of the core region and the clad region has a stripe shape and a stripe width is modulated in the vertical direction against the optical axis of at least the core region or the clad region and in the parallel direction with respect to the substrate surface, and the stripe width in the vicinity of the stripe ends is set narrower than a cut-off width where a lateral mode is identical, and the lateral width in the horizontal direction has a portion within the gain region set wider than the cut-off width were the lateral mode is identical.

#### REMARKS

Applicant has amended claims 10 and 20 in order to place them in accordance with standard U.S. practice.. No new matter has been added to the application as a result of this amendment.

In view of the above amendments and Applicant's comments stated herein, Applicant respectfully requests an early and favorable action on the merits.

Respectfully submitted,

  
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**February 26, 2002**

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## Marked Up Version of the Claims

10. (Amended) An optical module comprising at least an optical fiber for introducing light outside and the a semiconductor laser as claimed in Claim 1 that includes a semiconductor substrate, a core region formed on one side of the semiconductor substrate, and a clad region formed on the opposite side of the substrate not having the core region, wherein

the core region has a gain area length not smaller than 18 micrometers and not greater than 200 micrometers, at least one of the core region and the clad region has a stripe shape, and a stripe width is modulated in the vertical direction against the optical axis of at least the core region or the clad region and in the parallel direction with respect to the substrate surface,

the stripe width in the vicinity of the stripe ends is set narrower than a cut-off width where a lateral mode is identical, and

the lateral width in the horizontal direction has a portion within the gain region set wider than the cut-off width where the lateral mode is identical.

20. (Amended) An optical module comprising at least an optical fiber for introducing light outside and the a semiconductor laser as claimed in Claim 11 that includes a semiconductor substrate, a core region formed on one side of the semiconductor substrate, and a clad region formed at least on the opposite side of the substrate not having the core region, wherein

the core region has a gain area length not smaller than 5 micrometers and not greater than 200 micrometers, at least one of the core region and the clad region has a stripe shape and a stripe width is modulated in the vertical direction against the optical axis of at least the core region or the clad region and in the parallel direction with respect to the substrate surface, and

the stripe width in the vicinity of the stripe ends is set narrower than a cut-off width where a lateral mode is identical, and the lateral width in the horizontal direction has a portion within the gain region set wider than the cut-off width where the lateral mode is identical.